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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,712	12/28/2001	Masahiro Furusawa	111604	3933
25944	7590	11/18/2003	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			MARKHAM, WESLEY D	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/028,712	FURUSAWA ET AL.	
	Examiner	Art Unit	
	Wesley D Markham	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☒ Claim(s) 19 is/are objected to.
- 8) ☒ Claim(s) 17,18 and 20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>20020501</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1 – 20 are currently pending in U.S. Application Serial No. 10/028,712, and an Office Action on the merits follows.

Priority

1. Receipt is acknowledged of papers (i.e., a certified copy of Japanese priority document JP 2000-402809, filed on 12/28/2000) submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The IDS filed by the applicant on 5/1/2002 is acknowledged, and the references listed thereon have been considered by the examiner as indicated on the attached copy of the PTO-1449 form.

Drawings

3. The formal drawings (2 sheets, 2 figures) filed by the applicant on 12/28/2001 are acknowledged.
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "ST1", "ST2", and "ST3" have been used to designate both three sub-figures in Figure 1 and three different sub-figures in Figure 2. A proposed drawing correction or corrected drawings are required in reply to the Office Action to

avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The lengthy specification (21 pages, exclusive of the claims) has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
6. The disclosure is objected to because of the following informalities:
 - Page 1, third full paragraph: The phrase, "using a monosilan or a disilan gas" appears to contain typographical errors (i.e., the words "monosilane" and "disilane" appear to be misspelled).
 - Page 3, first paragraph: The phrase, " Si_nH_{2n} ($3 \leq n \leq 7$), is used" appears to contain a typographical error. After reviewing document JP 2000-12465, to which this paragraph refers, it appears as though the aforementioned phrase should read, " Si_nH_{2n} ($3 \leq n \leq 7$), is used".
 - Page 5, second full paragraph: The phrase, "which forms a silicon thin-film by proving a thin-film-forming surface..." appears to contain a typographical error (i.e., it appears as though the word "proving" should be replaced with the word "providing").
 - Page 8, third full paragraph: The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication

is improper. If the description of self-assembled films in Chapter 3 of “An Introduction to Ultrathin Organic Film from Langmuir-Blodgett to Self-Assembly” is deemed to contain essential material, the applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

- Page 15, first full paragraph: The phrase, “The concept of the present invention becomes bellows” is unclear and confusing.
- Page 17, first paragraph: The phrase, “the monomolecular film patterns 30a and 31b also have a form...” appears to contain a typographical error. It appears as though the aforementioned phrase should read, “the monomolecular film patterns 30a and 30b also have a form...”.

Appropriate correction is required.

Claim Objections

7. Claims 5, 12, and 19 are objected to because of the following informalities: The word “halogen” appears to be misspelled “hologen” in each of the aforementioned three claims. Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 8, 11 – 13, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Regarding Claims 8 and 15, the claims recite, in part, “running a gas selected from a group including...”. This is improper Markush group language and renders the claims vague and indefinite because the word “including” implies that the group is open to various elements (in this case, gases) that are not explicitly recited as part of the Markush group in the claims. Since one skilled in the art would not be aware of what these other elements are (i.e., what gases are included in, but not explicitly recited by, the Markush group), the scope of Claims 8 and 15 is unclear. An example of proper Markush group language is, “selected from the group consisting of...”.

11. Regarding Claim 11, the claim recites, in part, “forming an active region and an inactive region for CVD on said thin-film-forming surface of said first substrate in order to selectively deposit a silicon thin-film”. However, according to Claim 9 (from which Claim 11 depends), the “thin-film-forming surface” relates to the second substrate, not the first substrate. The first substrate has a “liquid arranging surface”. Therefore, it is unclear whether the active and inactive regions for CVD are

deposited on (1) the liquid arranging surface of the first substrate or (2) the thin-film forming surface of the second substrate, and the scope of Claim 11 is unclear.

12. Claim 12 (from which Claim 13 depends) recites the limitation, "said step of forming an active region and inactive region for said CVD" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim. Specifically, Claim 9, from which Claim 12 depends, does not recite or refer to a step of forming an active region and an inactive region for CVD. Therefore, it is unclear to what "step" Claim 12 is referring, and the scope of Claims 12 and 13 is vague and indefinite. Please note that Claim 11 does recite a step of forming an active region and inactive region for CVD.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1, 2, 9, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Sharp Corp (JP 2000-012465 A).

15. Regarding independent **Claim 1** (from which Claims 2 – 8 depend), Sharp Corp teaches a method of forming a silicon thin-film (Abstract) which comprises a step of arranging in one or more parts of a liquid arranging surface liquid which contains a

silicide comprising a ring silane and/or a derivative thereof, the ring silane comprising silicon and hydrogen (paragraph [0019]), and a step of forming the silicon thin-film by vaporizing silicide from the liquid and supplying the silicide to a thin-film forming surface (Abstract, Figure 1, and paragraphs [0012] – [0015], [0019] – [0034], [0046] – [0053], and [0060] – [0070]). Regarding **Claim 2**, Sharp Corp also teaches that the thin-film forming surface is identical to the liquid arranging surface. Specifically and in reference to Figure 3, Sharp Corp teaches that both the thin-film forming surface (i.e., substrate “B2”) and the liquid arranging surface (i.e., substrate “B1”) are glass substrates with equivalent size (paragraphs [0065] – [0069]). In other words, the substrates are “identical”, as claimed by the applicant. Regarding independent **Claim 9** (from which Claims 10 – 16 depend), Sharp Corp teaches a method of forming a silicon thin-film (Abstract) which comprises a step of arranging, in one or more parts of a first substrate for arranging, liquid which contains a silicide comprising a ring silane and/or a derivative thereof, such ring silane comprising silicon and hydrogen (Figure 3, paragraphs [0019], [0046], and [0060] – [0065]), arranging a thin-film-forming surface of a second substrate for forming a thin-film to be set facing a liquid arranging surface of the first substrate (Figure 3, paragraphs [0065] – [0068]), and vaporizing silicide from the liquid arranged on the liquid arranging surface on the first substrate and supplying the silicide to the thin-film forming surface on the second substrate (paragraphs [0066] – [0070]). Regarding **Claim 16**, Sharp Corp also teaches that, in the step of vaporizing the silicide, the second substrate is heated so as to have a temperature at which the thin-film-

forming surface can decompose a vaporizing matter of silicide, and the first substrate is heated to a temperature at which silicide is vaporized from the liquid (paragraph [0067]). Sharp Corp does not explicitly teach that the first substrate is heated by heat emitted from the second substrate pursuant to the heating. However, Sharp Corp does teach that both substrates are heated to a temperature of, for example, 350° C (paragraph [0067]), and that the substrates are set facing each other in a chamber so that the vaporized liquid material from the first substrate can be deposited by CVD on the second substrate (Figure 3 and paragraphs [0066] – [0067]). By heating the second substrate to a high temperature (i.e., 350° C, as taught by Sharp Corp) in a chamber in the proximity of the first substrate, the first substrate would have inherently been heated, to some extent, by heat emitted from the second substrate pursuant to the heating of the second substrate, as required by Claim 16. Please note that Claim 16 does not require that the first substrate is heated to the appropriate silicide vaporization temperature solely by heat emitted from the second substrate.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
18. Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharp Corp (JP 2000-012465 A) in view of Furusawa et al. (WO00/59044 A1). Please note that USPN 6,518,087 B1 (i.e., the 371 / National Stage Application corresponding to document WO00/59044 A1) is being used as an effective English-language translation of the WO00/59044 A1 document, which was published in Japanese.
19. Sharp Corp teaches all the limitations of Claims 3 and 10 as set forth above in paragraph 15, except for a method wherein a solution in which cyclopentasilane (CPS) and/or silylcyclopentasilane (SCPS) are/is dissolved in an organic solvent is used as the liquid. However, Sharp Corp does teach that CPS can be utilized as the liquid in the silicon film deposition process (paragraph [0019]) and that such a compound can be included in "various mixtures" (paragraph [0019]). Furusawa et al. teaches that it was known in the art of depositing silicon films at the time of the

applicant's invention to dissolve compounds such as CPS and SCPS in an organic solvent such as a hydrocarbon in order to obtain a coating solution that has an appropriate viscosity (i.e., not too low so that coating is difficult to perform, and not so high so that it is difficult to obtain a coating film having a smooth surface) (Col.5, lines 21 – 22, and Col.9, lines 1 – 58). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a solution in which cyclopentasilane (CPS) and/or silylcyclopentasilane (SCPS) are/is dissolved in an organic solvent in the process of Sharp Corp with the reasonable expectation of (1) success, as Sharp Corp does teach that CPS can be utilized as the liquid in the silicon film deposition process and that such a compound can be included in "various mixtures", and Furusawa et al. teaches that ring silane compounds are soluble in organic (i.e., hydrocarbon) solvents, and (2) obtaining the benefits of adding a solvent to the CPS liquid of Sharp Corp, such as the ability to tailor the viscosity of the solution so that the liquid can be deposited easily and uniformly on the substrate of Sharp Corp.

20. Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharp Corp (JP 2000-012465 A) in view of Shimoda et al. (WO00/59015 A1). Please note that USPN 6,541,354 B1 (i.e., the 371 / National Stage Application corresponding to document WO00/59015 A1) is being used as an effective English-language translation of the WO00/59015 A1 document, which was published in Japanese.

21. Sharp Corp teaches all the limitations of Claims 7 and 14 as set forth above in paragraph 15, except for a method wherein the step of arranging the liquid (i.e., on the first substrate) is performed by an inkjet method. Specifically, Sharp Corp teaches that the liquid can be applied by a spin coating method, a dip coating method, a spray coating method, a bar coating method, or a curtain coating method, but that the method of application is not especially limited (paragraph [0033]). Shimoda et al. teaches that a solution containing a cyclic silane compound can be deposited on a substrate by spin coating, roll coating, curtain coating, dip coating, or spraying (i.e., methods taught by Sharp Corp) or by ink jetting (Col.8, lines 6 – 8). In other words, Shimoda et al. teaches the functional equivalence of the coating methods taught by Sharp Corp and inkjet coating. Therefore, it would have been obvious to one of ordinary skill in the art to deposit the liquid of Sharp Corp by an inkjet method (as taught by Shimoda et al.) with the reasonable expectation of success, as Sharp Corp teaches that the coating method is not especially limited, and obtaining similar results (i.e., successfully depositing the cyclic silane compound on the substrate, regardless of the specific deposition method utilized).

22. Claims 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharp Corp (JP 2000-012465 A) in view of Concept Systems (EP 0 823 491 A2).

23. Sharp Corp teaches all the limitations of Claims 8 and 15 as set forth above in paragraph 15, except for a method wherein the step of vaporizing the silicide is performed while running a gas selected from the group consisting of an inactive gas,

a hydrogen gas, and a mixed gas of an inactive gas and a hydrogen gas, substantially in parallel with the liquid arranging surface. However, Sharp Corp does teach that the vaporization / deposition process is carried out in an inert gas environment in general (paragraphs [0051], [0052], and [0063] – [0066]). Concept Systems teaches that, by flowing an appropriate gas (e.g., hydrogen) parallel to the substrate in a silicon film CVD process, the unwanted deposition of material on the walls of the CVD chamber can be minimized, and uniform deposition rates across the substrate surface can be obtained (Col.9, lines 49 – 56, Col.10, lines 54 – 55, and Col.11, lines 2 – 22). Therefore, it would have been obvious to one of ordinary skill in the art to vaporize the silicide (i.e., supply the reactant vapor) of Sharp Corp while running a gas selected from the group consisting of an inactive gas, a hydrogen gas, and a mixed gas of an inactive gas and a hydrogen gas, substantially in parallel with the substrate of Sharp Corp, and, since the substrate of Sharp Corp is substantially parallel with the liquid arranging surface taught by Sharp Corp (Figures 1 and 3), also substantially in parallel with the liquid arranging surface, with the reasonable expectation of (1) success, as the apparatus of Sharp Corp is clearly capable of introducing various process gases into the chamber and between the substrate and the liquid arranging surface (see, for example, reference numbers “8”, “9”, “28”, and “29” in Figures 1 and 3), and (2) obtaining the benefits of flowing such a gas parallel to the surfaces, such as minimizing the unwanted deposition of material on the walls of the CVD chamber.

24. Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharp Corp (JP 2000-012465 A) in view of either the applicant's admitted prior art (AAPA) or Ping (USPN 6,235,605 B1), and in further view of Clem et al. (WO 97/07429 A1).
25. Sharp Corp teaches all the limitations of Claims 4 and 11 as set forth above in paragraph 15, except for a method that further comprises the step of, in order to selectively deposit a silicon thin-film, forming an "active region" and an "inactive region" for CVD on the thin-film forming surface before performing the step of arranging the liquid (i.e., on the liquid arranging surface). Specifically, the process of Sharp Corp it utilized to deposit a uniform (i.e., non-selective) silicon thin film on the surface of a substrate. However, both the AAPA and Ping teach that, in some applications, it is desirable to selectively deposit a silicon thin-film in a pattern on a substrate (page 1, third full paragraph of the applicant's specification; and Col.1, lines 51 – 67, and Col.2, lines 60 – 64 of Ping). Clem et al. teaches that a desired pattern of material can be deposited on a substrate by CVD (i.e., a process analogous to that of Sharp Corp) by first forming an "active region" and an "inactive region" for CVD on the substrate (i.e., the thin-film forming surface), the "inactive region" being a region on which a self-assembled monolayer (SAM) is deposited and the "active region" being the region lacking the SAM, and then selectively vapor depositing the material on only the "active region" (Abstract, Figures 2a – 2c, page 1, lines 5 – 9, page 3, lines 7 – 24, page 8, lines 2 – 10, page 9, lines 18 – 31, and page 10, lines 1 – 7). It would have been obvious to one of ordinary skill in the art to

selectively deposit a silicon thin-film using the method of Sharp Corp by forming an “active region” and an “inactive region” for CVD on the thin-film forming surface, as taught by Clem et al., with the reasonable expectation of successfully and advantageously depositing silicon in a particular pattern, as taught by either the AAPA or Ping to be desirable in various applications. The combination of Sharp Corp, either the AAPA or Ping, and Clem et al. does not explicitly teach that the step of forming the “active” and “inactive” regions on the thin-film forming surface is performed before the step of arranging the liquid (i.e., on the liquid arranging surface). Specifically, the aforementioned combination of references is silent as to the order of these two steps. However, there are only two possible orders for performing the steps: (1) forming the “active” and “inactive” regions before arranging the liquid, or (2) forming the “active” and “inactive” regions after arranging the liquid. It would have been obvious to one of ordinary skill in the art to perform these two steps in either order with the reasonable expectation of success and obtaining similar results (i.e., selectively depositing a silicon thin-film pattern, regardless of the order of the aforementioned two steps). Please note that, in general, the transposition of process steps, where the processes are substantially identical or equivalent, was held to not patentably distinguish the processes (*Ex parte Rubin*, 128 USPQ 440 (Bd. Pat. App. 1959)).

26. Claims 5, 6, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharp Corp (JP 2000-012465 A) in view of either the applicant’s admitted prior

art (AAPA) or Ping (USPN 6,235,605 B1), in further view of Clem et al. (WO 97/07429 A1), and in further view of Sirejacob (USPN 6,379,448 B1) and Hieda et al. (USPN 6,303,277 B1).

27. The combination of Sharp Corp, either the AAPA or Ping, and Clem et al. teaches all the limitations of Claims 5, 6, 12, and 13 as set forth above in paragraph 25, except for a method wherein (1) the SAM has the general formula RSiX_3 , as defined by the applicant, (2) the SAM is formed on a thin-film forming surface in which a hydroxyl group exists, (3) part of the SAM is removed by a physical treatment, which region becomes an active region for CVD, and (4) the step of removing the SAM is performed by UV irradiation through a photomask or electron beam irradiation. However, the SAM utilized by Clem et al. to form the "inactive region" does not appear to be particularly limited (page 10, lines 8 – 9, and page 15, lines 5 – 6). Sirejacob teaches that SAMs having the general formula RSiX_3 , as defined by the applicant, were known in the art at the time of the applicant's invention (Col.9, lines 7 – 15 and 55 – 57, Col.13, lines 32 – 47, and Col.17, lines 42 – 67). Such SAMs are applied by first hydroxylating the surface on which the SAMs will be formed (Col.6, lines 49 – 56), and the SAMs can be deposited on glass substrates (i.e., the type of substrate taught by Sharp Corp). It would have been obvious to one of ordinary skill in the art to deposit a SAM having the general formula RSiX_3 , as defined by the applicant, as the "inactive region" of the combination of Sharp Corp, either the AAPA or Ping, and Clem et al., on a hydroxylated glass substrate surface (as taught by Sirejacob) with the reasonable expectation of successfully and advantageously

forming the “inactive region” from a well-known SAM that can be successfully applied to a siliceous substrate (e.g., glass). In other words, it would have been obvious to one of ordinary skill in the art to choose / use a specific SAM (i.e., the SAM taught by Sirejacob and claimed by the applicant) out of the broad genus of SAMs generally taught by Clem et al. Additionally, Hieda et al. teaches that monomolecular films such as silanes can be formed in a desired pattern on a substrate by first coating the entire substrate with the film and then removing a portion of the film by irradiation with an energy beam such as an electron beam (Col.4, lines 55 – 65, and Col.5, lines 9 – 25). Therefore, it would have been obvious to one of ordinary skill in the art to form the patterned SAM of the combination of Sharp Corp, either the AAPA or Ping, Clem et al., and Sirejacob by first coating the entire substrate with the SAM and then removing a portion of the SAM by irradiation with an energy beam such as an electron beam (as taught by Hieda et al.) as opposed to stamping the SAM in a desired pattern (as taught by Clem et al.) with the reasonable expectation of success and obtaining similar results (i.e., successfully forming a patterned SAM “inactive region” for CVD, regardless of whether the patterned SAM is stamped on the substrate or deposited on the entire substrate and then partially removed with an electron beam).

Allowable Subject Matter

28. Claims 17, 18, and 20 are allowed. Claim 19 is objected to for the reason set forth in paragraph 7 above, but no prior art has been applied against the claim.

29. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record, alone or in combination, does not teach or reasonably suggest selectively depositing a silicon thin-film by forming on one or more parts of a liquid arranging surface on a first substrate, an active region and inactive region for CVD; arranging the claimed ring silane-containing liquid on the liquid arranging surface; and vaporizing a silicide from the liquid arranged on the liquid arranging surface and supplying the silicide to a thin-film forming surface of a second substrate to selectively deposit the silicon film. Specifically, as set forth in the paragraphs above, the prior art of record teaches forming an active region and inactive region for CVD on a thin-film forming surface, not a liquid arranging surface, in order to selectively deposit a thin film.

Conclusion

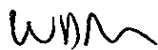
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Vaeth et al. (USPN 5,869,135) teaches the selective CVD of polymers on a substrate that has been treated with a SAM-pattern in order to create active and inactive regions on the substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (703) 308-7557. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



WDM

Wesley D Markham
Examiner
Art Unit 1762

MICHAEL BARR
PRIMARY EXAMINER

